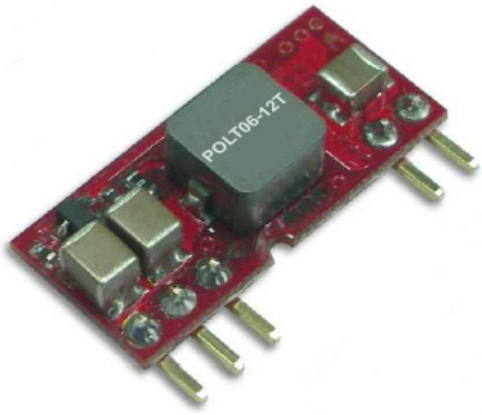
SMD Package

Size: 0.80in x 0.45in x 0.25in

SIP Vertical Package



Size: 0.90in x 0.40in x 0.23in

SIP Horizontal Package

Size: 0.90in x 0.40in x 0.40in

OPTIONS

- SMD or SIP Package Type Available
- Vertical or Horizontal Mounting for SIP Package
- Remote Control Positive or Negative Logic

FEATURES

- SMD and SIP packages available
- High Efficiency of 89%
- Small Size and Low Profile
- SMD Package qualifies for Leadfree Reflow Solder Process According to IPC J-STD-020D
- Delivers up to 6A of Output Current
- Fixed Switching Frequency
- Output Voltage Programmable from 0.75VDC to 5VDC via External Resistor
- No Minimum Load Required
- CE Marked
- RoHS II & REACH
- Over Load, Over Temperature, and Short Circuit Protection
- Remote ON/OFF
- UL60950-1, EN60950-1, & IEC60950-1 Safety Approvals

APPLICATIONS

- Wireless Network
- Telecom/Datacom
- Industry Control System
- Distributed Power Architectures
- Semiconductor Equipment
- Microprocessor Power Applications

DESCRIPTION

The POL06-12T series of DC DC POL converters offers up to 6A of output current and 4.5~30W output power. This series has an input voltage range of 8.3~13.2 (14)VDC and programmable output voltage via external resistor ranging from 0.75~5VDC. No minimum load is required and there is a fixed switching frequency for this series. POL06-12T has many options available including an SMD or SIP package type, vertical or horizontal mounting for SIP package, or positive or negative logic. This series has over load, over temperature, and short circuit protection, is RoHS II & REACH, and has UL60950-1, EN60950-1, & IEC60950-1 safety approvals. Please call factory for order details.

MODEL SELECTION TABLE

Model Number	Input Voltage Range	Output Voltage	Output Current @Full Load	Efficiency	Package Type	Remote ON/OFF
POLS06-12T	12VDC (8.3~14VDC)	0.75~5VDC	6A	89%	SMD	Positive
POLS06-12T-P						Negative
POLT06-12T	12VDC (8.3~13.2VDC)	0.75~5VDC	6A	89%	SIP Vertical	Positive
POLT06-12T-P						Negative
POLT06-12TA					SIP Horizontal	Positive
POLT06-12TA-P						Negative

SPECIFICATIONS

All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.
We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS		Min	Typ	Max	Unit
INPUT SPECIFICATIONS						
Input Voltage Range	Vout(set) ≤3.63VDC		8.3	12	14	VDC
	Vout(set) >3.63VDC		8.3	12	13.2	
Start-Up Voltage				30		mAp-p
Shutdown Voltage				7.8		VDC
Input Reflected Ripple Current	5~20MHz, 1µH source impedance			30		mAp-p
Maximum Input Current	Vin=Vin(min), Io=Io(max.)			4.5		A
Input Filter[1]			Capacitor Type			
OUTPUT SPECIFICATIONS						
Output Voltage			0.75		5	VDC
Voltage Accuracy	% of Vout(set)		-2.0		+2.0	%
Line Regulation	Vin=Vin(min.) to Vin(max.) at Full Load; % of Vout(set)		-0.3		+0.3	%
Load Regulation	No Load to Full Load; % of Vout(set)		-0.4		+0.4	%
Voltage Adjustability[2]			0.7525		5	VDC
Output Current					6	A
Minimum Load			0			%
Maximum Capacitive Load[3]	ESR≥1mΩ			1000		µF
	ESR≥10mΩ			3000		
Ripple & Noise (20MHz bandwidth)	Measured by 20MHz bandwidth with a 1µF MLCC & a 10µF T/C				20	mVrms
					50	mVp-p
No Load Input Current	0.75VDC			17		mA
	5.0VDC			100		
Dynamic Load Response[4]	ΔIo/Δt=2.5A/µs, Vin(nom)	Peak Deviation		200		mV
	50% Load Step Change	Setting Time (Vout<10%peak deviation)		25		µs
Dynamic Load Response[5]	ΔIo/Δt=2.5A/µs, Vin(nom)	Peak Deviation		50		mV
	50% Load Step Change	Setting Time (Vout<10%peak deviation)		50		µs
Rise Time	Time for Vout to rise from 10% to 90% of Vout(set)				6	mS
Output Voltage Overshoot-Startup	Vin=Vin(min.) to Vin(max.) at Full Load; % of Vout(set)			1.0		%
Temperature Coefficient			-0.4		+0.4	%/ºC
REMOTE ON/OFF CONTROL[6]						
Negative Logic (Option)	DC/DC ON		Open or 0~0.3VDC			
	DC/DC OFF		2.5VDC~Vin(max.)			
Positive Logic (Standard)	DC/DC ON		Open or (Vin-4)~Vin(max.)			
	DC/DC OFF		0~0.3VDC			
Input Current of CTRL Pin			0.1		1.0	mA
Remote OFF Input Current				1.2		mA
Turn-On Delay Time	Case 1[7] Case 2 [8]			3		ms
PROTECTION						
Short Circuit Protection			Continuous, Automatic Recovery			
Over Load Protection	% of Iout			200		%
Over Temperature Protection				140		ºC
ENVIRONMENTAL SPECIFICATIONS						
Operating Ambient Temperature	With Derating		-40		+85	ºC
Storage Temperature			-55		+125	ºC
Thermal Shock			MIL-STD-801F			
Relative Humidity	Non-Condensing		5		95	%RH
Vibration			MIL-STD-810F			
Lead-Free Reflow Solder Process			IPC J-STD-020D			
Moisture Sensitivity Level (MSL)			IPC J-STD-033B Level 2a			
MTBF	MIL-HDBK-217F, Full Load		9,277,000			Hours

SPECIFICATIONS

All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.
We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS	Min	Typ	Max	Unit
GENERAL SPECIFICATIONS					
Efficiency	3.3VDC@Full Load		89		%
Switching Frequency		270	300	330	kHz
PHYSICAL SPECIFICATIONS					
Weight		0.1oz (2.8g)			
Dimensions (L x W x H)	SMD Package	0.80in x 0.45in x 0.25in (20.3mm x 11.4mm x 6.4mm)			
	Vertical SIP Package	0.90in x 0.40in x 0.23in (22.9mm x 10.2mm x 5.9mm)			
	Horizontal SIP Package	0.90in x 0.40in x 0.40in (22.9mm x 10.2mm x 10.1mm)			
SAFETY & EMC CHARACTERISTICS					
Safety Approvals	UL60950-1(9) EN60950-1 IEC60950-1				

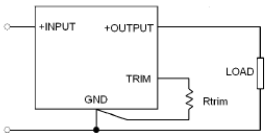
NOTES

(1) It's necessary to equip the external input capacitors at the input of the module. The capacitors should connect as close as possible to the input terminals that ensuring module stability. The external C_{in} is 2pcs of 47μF ceramic capacitors at least.

(2) Output voltage programmable from 0.7525V to 5V by connecting a single resistor (shown as Trim Table) between the Trim and GND pins of the module. To calculate the value of the resistor Rtrim for a particular output voltage Vout use the following equation:

$$Rtrim = \left[\frac{10500}{Vout - 0.7525} - 1000\right]\Omega$$

Trim Figure



Trim Table

Vout(set) (VDC)	Rtrim (kΩ)
0.7525	Open
1.2	22.46
1.5	13.05
1.8	9.024
2.5	5.009
3.3	3.122
5	1.472

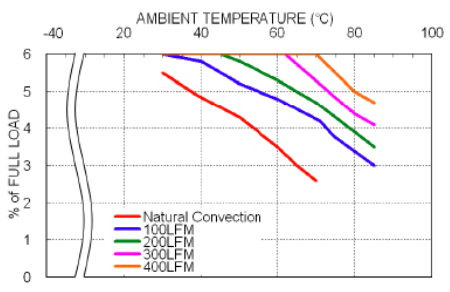
(3) Test by minimum input and constant resistive load.
(4) With a 1μF MLCC & a 10μF T/C
(5) With 2pcs of 150μF polymer capacitors
(6) Remote ON/OFF Referred to –Vin pin
Positive Logic: ON/OFF is open collector/drain logic input
Negative Logic: ON/OFF pin is open collector/drain logic input with external pull-up resistor
(7) Case 1: ON/OFF input is set to logic low (module on) and then input power is applied (delay from instant at which Vin=Vin(min.) until Vout=10% of Vout(set))
(8) Case 2: Input power is applied for at least one second and then the ON/OFF input is set to logic low (delay from instant at which Von/off=0.3VDC until Vout=10% of Vout(set))
(9) This product is Listed to applicable standards and requirements by UL.

CAUTION: This power module is not internally fused. An input line fuse must always be used.

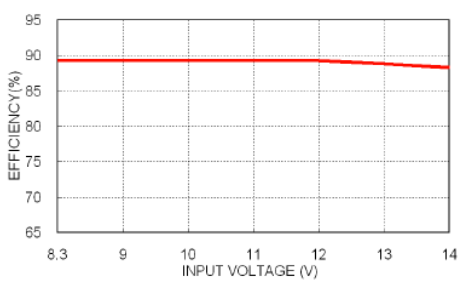
**Due to advances in technology, specifications subject to change without notice.*

CHARACTERISTIC CURVES

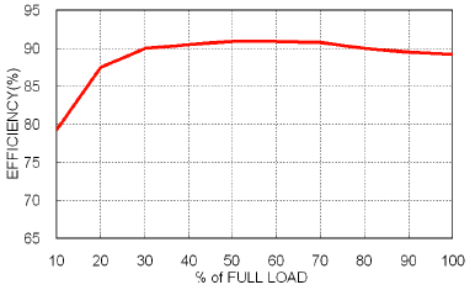
POLS06-12T, Vout=3.3V
Derating Curve



POLS06-12T, Vout=3.3V
Efficiency vs. Input Voltage

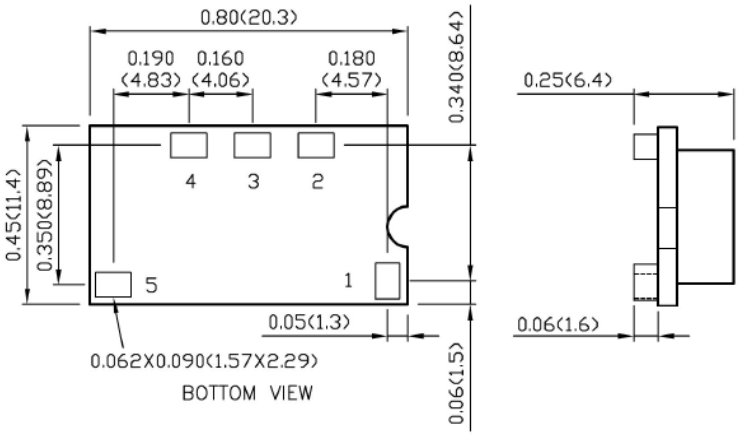


POLS06-12T, Vout=3.3V
Efficiency vs. Output Load



MECHANICAL DRAWINGS

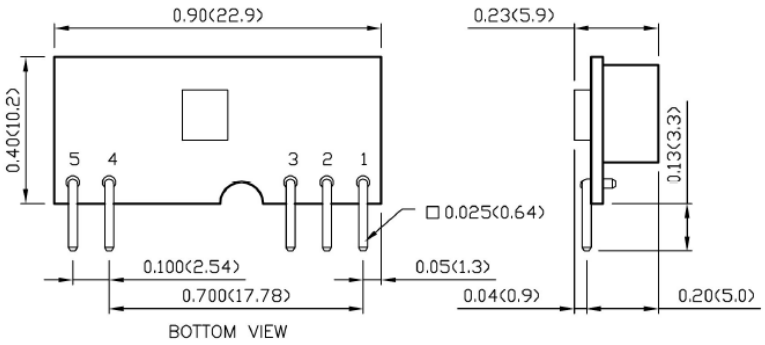
SMD Package



PIN Connection

PIN	DEFINE
1	Ctrl
2	+Vout
3	Trim
4	GND
5	+Vin

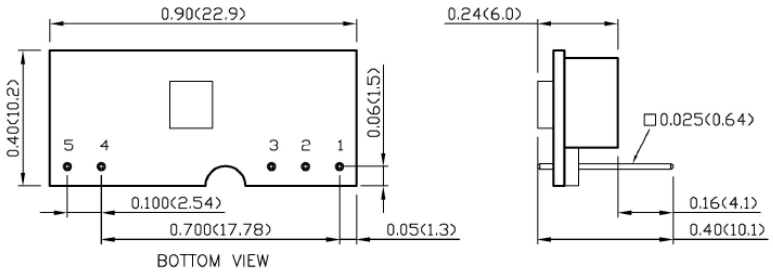
SIP Vertical Package



PIN Connection

PIN	DEFINE
1	+Vout
2	Trim
3	GND
4	+Vin
5	Ctrl

SIP Horizontal Package



PIN Connection

PIN	DEFINE
1	+Vout
2	Trim
3	GND
4	+Vin
5	Ctrl

1. All dimensions in inch (mm)
2. Tolerance: x.xx0.02 (x.x±0.5)
   x.xxx±0.01 (x.xx±0.25)
3. Pin pitch tolerance ±0.01 (0.25)
4. Pin dimension tolerance ±0.004(0.1)

MODEL NUMBER SETUP

POLT	06	-	12	TA	P
Series Name	Output Current		Input Voltage	Package	Remote On/Off & Pin Length
POLS: SMD Type **POLT:** SIP Type	**06:** 6A		**12:** 8.3~14VDC	**T:** No Assembly **T:** Vertical Mouting SIP **TA:** Horizontal Mounting SIP	**None:** Positive Logic **P:** Negative Logic

COMPANY INFORMATION

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001: 2015 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

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